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**DATE:** August 16, 2005

**TO:** Examiner Stephen J. Stein      **FAX NO.:** 571-273-8300  
USPTO GPAU 1775

**FROM:** Jeffrey S. Abel  
Reg. No.: 36,079

**RE U.S. App. No.:** 10/669,141, filed September 23, 2003

**Applicant(s):** Milan Kokta, et al.

**Atty Dkt No.:** 1035-BI4282

**Title:** SPINEL ARTICLES AND METHODS FOR FORMING SAME

**NO. OF PAGES (including Cover Sheet):** 5

**MESSAGE:**

Attached please find:

- ☒ Transmittal Form (1 pg)
- ☒ Request for Reconsideration (3 pgs)

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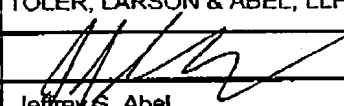
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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/669,141	
	Filing Date	September 23, 2003	
	First Named Inventor	Milan Kokta	
	Art Unit	1775	
	Examiner Name	Stephen J. Stein	
Total Number of Pages in This Submission	4	Attorney Docket Number	1035-BI4282

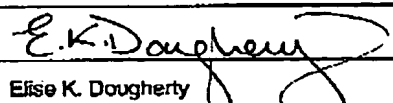
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## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	TOLER, LARSON & ABEL, LLP		
Signature			
Printed name	Jeffrey S. Abel		
Date	8/16/05	Reg. No.	36,079

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Typed or printed name	Elise K. Dougherty	Date	8/16/05

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AUG 16 2005

PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Milan Kokta, et al.

Title: SPINEL ARTICLES AND METHODS FOR FORMING SAME

App. No.: 10/669,141

Filed:

September 23, 2003

Examiner: Stephen J. Stein

Group Art Unit:

1775

Customer No.: 34456

Confirmation No.:

2825

Atty. Dkt. No.: 1035-BI4282

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MS AF  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

## REQUEST FOR RECONSIDERATION

Dear Sir:

In response to the Final Office Action mailed June 1, 2005, reconsideration of the rejections contained therein is respectfully requested for the following reasons.

1. Claims 1, 5, 11, 18 and 19 were rejected under the judicially created doctrine of obviousness-type double patenting over claims 10 and 11 of co-pending Application No. 10/802,160. While Applicants do not acquiesce to this rejection, Applicants shall provide a Terminal Disclaimer effective to remove the provisional rejection upon resolution of the remaining issues contained in the Office Action.

2. Claims 1-22 were rejected under §102(b) over Cullen et al. This rejection is respectfully traversed for the following reasons.

The claimed invention is drawn to a single crystal spinel boule (claim 1), a single crystal spinel wafer (claim 5), and a single crystal optoelectronic substrate (claim 18). The present claims also specify that the spinel is non-stoichiometric, having a b:a ratio greater than 2.5:1. The

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<u>Elise K. Dougherty</u> Typed or Printed Name	<u>E.K. Dougherty</u> Signature

particular combination of features of a high-ratio spinel in the form of a single crystal is particularly significant. In this respect, Applicants have developed processing techniques to enable formation of high ratio non-stoichiometric spinels while retaining a single-crystal morphology. The attention of the PTO is drawn to page 7, paragraph 31 through page 9, paragraph 35, describing a process in which particular aspect ratios are utilized, namely, the size of crystal relative to the crucible from which the crystal is grown. Applicants have discovered that if deviation is made from the aspect ratios described, orientation of the crystal is lost, and the crystal undergoes "twinning," a multiphasic condition in which multiple crystals are formed rather than a single crystal. Twinning is also characterized by multiple phases having multiple crystalline grains of various lattice parameters.

Turning to the cited prior art, Cullen et al. describe that high ratio alumina-rich spinels may be formed by Czochralski methods, but such attempts have generally failed. In particular, column 2, lines 15-20 describes that alumina rich non-stoichiometric spinels result in multiphasic crystals. Cullen et al. go on to teach that in a particular earlier attempt a 3.2:1 non-stoichiometric spinel was formed, but it was characterized as having two lattice constant values, indicating a multiphasic crystal rather than a single crystal. It is quite clear that the prior art in the context of high ratio non-stoichiometric spinels is limited to multiphasic, non-single crystal materials, in direct contrast to the claimed invention. In this respect, Applicants emphasize that the process conditions described in the present specification as summarized above contribute to the successful formation of single crystal spinels and that such process conditions are nowhere disclosed or even remotely suggested by the prior art. In addition, there are no other teachings contained in the prior art from which one could reasonably conclude that the prior art provides single crystal non-stoichiometric spinels having a b:a ratio greater than 2.5:1.

Since Cullen et al. fail to disclose or even remote suggest all features of the claimed invention, withdrawal of the §102(b) rejection is respectfully requested.

Applicants respectfully submit that the present application continues to be in condition for allowance. Accordingly, Examiner Stein is requested to issue a Notice of Allowance for all pending claims.

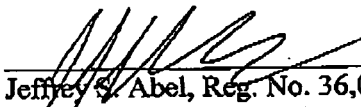
Should Examiner Stein deem that any further action by the Applicants would be desirable for placing this application in even better condition for issue, he is requested to telephone Applicants' undersigned attorney at the number listed below.

Applicants do not believe that any additional fees are due, but if the Commissioner believes additional fees are due, the Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-2469.

Respectfully submitted,

Date

8/16/05

  
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